

Serial No.: 10/731,374
Amdt. Dated July 26, 2006
Reply to Office action of May 26, 2006

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REMARKS

In the Office Action of May 26, 2006, claims 35-48 were rejected. Claim 49 was withdrawn pursuant to an earlier restriction requirement and election. The May 26, 2006 Office action has been carefully considered. The Applicant respectfully requests reconsideration of the application by the Examiner in light of the following remarks.

35 USC § 103(a) Rejections

The Examiner rejected claim 35 under 35 U.S.C. 103(a) as being unpatentable over Fukuhara et al. (Japanese Patent Abstract 62253634; hereinafter "Fukuhara") in view of Sakata (Japanese Patent Abstract 58138735). The Applicant respectfully traverses the rejection.

Fukuhara teaches a technique for plasma treatment of a surface and Sakata teaches plasma treatment of a molded plastic article followed by a coating process.

The Applicant would like to bring to the Examiner's attention the fact that the treating gas of Fukuhara, characterized by the Examiner as the "reactant gas" in the office action, is used to form the plasma in Fukuhara and should not be equated with the term "reactant gas" as used by the Applicant, wherein a "reactant gas" is flowed into an already formed plasma.

Discussing Sakata, the Examiner states in the office action that, "[t]he reactant gas, in this case oxygen, is injected into the formed plasma and the reactant gas and plasma flow towards the substrate surface..." This statement lacks support in the Sakata abstract, the only portion of the Sakata reference which has been translated into the English language. Nowhere in the abstract does Sakata state that oxygen is flowed into an already formed plasma. Instead, Sakata only states that, "...[a] molded plastic article (e.g. molded article of polymethacrylate resin) is subjected to the plasma treatment (e.g. in the mixture of oxygen and inert gas under the following conditions: flow rate, 10-300ml/min; pressure, 0.5-2Torr; power of electric discharge, 50-500W; and treatment time, 0.2- 10min)..."

The present invention recites a plasma technique for forming a uniform coating on a non-planar surface, not merely a plasma pretreatment of a surface as disclosed by Sakata. Claim 35

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of the instant specification, *inter alia*, recites, “...injecting at least one reactant gas into each of the plurality of plasmas such that a first flow rate of the at least one reactant gas into a first plasma and a second flow rate of the at least one reactant gas into a second plasma is different; flowing the at least one reactant gas and the plurality of plasmas into the deposition chamber toward the non-planar substrate and reacting the at least one reactant gas with each of the plurality of plasmas to form the uniform coating on the surface of the non-planar substrate...”

Fukuhara may teach flowing the plasma at different rates into a treatment chamber, but Fukuhara does not teach or suggest injecting the at least one reactant gas into a first and a second plasma at different rates and reacting the at least one reactant gas with each of the plurality of plasmas to form a uniform coating on the surface of the non-planar substrate.

Similarly, Sakata may teach plasma treating in a mixture of oxygen and inert gas followed by a cleaning process and a curable substance coating process, but Sakata again does not teach or suggest injecting the at least one reactant gas into a first and second plasma at different rates and reacting the at least one reactant gas with each of the plurality of plasmas to form a uniform coating on the surface of the non-planar substrate. It would not be obvious to one of ordinary skill in the art at the time of the invention to modify Fukuhara in view of Sakata to incorporate the above recited claim elements. Therefore, neither reference independently nor in combination, renders obvious claim 35.

Therefore, Fukuhara in view of Sakata does not teach or suggest each and every element of claim 35. Therefore, the Applicant respectfully requests that the Examiner withdraw the rejection of claim 35 under 35 U.S.C. 103(a).

Claims 36-37 were rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuhara in view of Sakata and further in view of Schram et al. (US Patent 4,871,580; hereinafter called “Schram”). The rejection is respectfully traversed.

As stated above, the combination of Fukuhara and Sakata does not, among other things, teach or suggest injecting the at least one reactant gas into a first and second plasma at different rates and reacting the at least one reactant gas with each of the plurality of plasmas to form a uniform coating on the surface of the non-planar substrate, and neither does Schram. Whether or

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not Schram teaches or suggests an expanding thermal plasma source is not pertinent to the patentability of claims 36 and 37 as the step of injecting the at least one reactant gas into a first and second plasma at different rates and reacting the at least one reactant gas with each of the plurality of plasmas to form a uniform coating on the surface of the non-planar substrate is not taught or suggested by the combination of references. So Fukuhara in view of Sakata and further in view of Schram does not teach or suggest each and every element of claim 36 or claim 37 and hence does not teach or suggest the elements of all claims dependent directly or indirectly on claims 37 and claim 37.

Therefore Applicant respectfully requests withdrawal of the rejection.

Claims 38-48 were rejected under 35 U.S.C. 103(a) as being unpatentable Fukuhara in view of Sakata and further in view of Mochizuki (Japanese Patent Abstract 63187619). The rejection is respectfully traversed.

As stated above, the combination of Fukuhara and Sakata does not teach or suggest injecting the at least one reactant gas into a first and second plasma at different rates and reacting the at least one reactant gas with each of the plurality of plasmas to form a uniform coating on the surface of the non-planar substrate, and neither does Mochizuki. Whether or not Mochizuki teaches or suggests a gas injector with a plurality of orifices is not pertinent as the step of injecting at least one reactant gas into a first and second plasma at different rates and reacting the at least one reactant gas with each of the plurality of plasmas to form a uniform coating on the surface of the non-planar substrate is not taught or suggested by the combination of references. So Fukuhara in view of Sakata and further in view of Mochizuki does not teach or suggest each and every element of claim 38 or claim 41 and hence does not teach or suggest the elements of all claims dependent directly or indirectly on claims 38 and claim 41.

Therefore, the Applicant respectfully requests that the Examiner withdraw the rejection of claims 38-48 under 35 U.S.C. 103(a).

Double Patenting

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The Examiner provisionally rejected claims 35-48 as being unpatentable over claims 32-43 of co-pending Application No. 10/62253 in view of Fukuhara. Since the obviousness type double patenting rejection is provisional, and both cases are still pending and their claims still subject to amendment, the Applicant requests that this issue be addressed upon a finding of patentable subject matter in either or both cases.

In view of the foregoing amendment and arguments, the Applicant believes that each of claims 35-48 is now in condition for allowance. The Applicant thus courteously solicits the Examiner's review of the proposed amendment to the drawings and prompt allowance of the claims. Should the Examiner believe that anything further is needed to place the application in even better condition for allowance, the Examiner is requested to contact the Applicant's undersigned representative at the telephone number below.

Respectfully submitted,



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